Toolkit Tip for Afterschool Teachers: Preparing a Lesson

The 5 Es

Remember to use these steps when conducting science inquiry lessons!

Engage/Excite

Students are introduced to the concept. Students make connections to prior knowledge and what is to be studied. Student thinking is clarified. Students become mentally engaged in the new learning experience.

Teachers ask questions of students and engage them in the guided inquiry lessons. They use strategies such as KWL (PDF, 56K) that make connections between the past and present learning experience. Teachers set a level of anticipation.

Explore

Students explore or experiment at this point. They engage in observations, use science tools and materials (manipulatives), collect data, and record data.

Teachers set up the investigation and guide students in inquiry, asking probing questions to clarify understanding.

Explain

Students verbalize their understandings from the "explore" phase, look for patterns in their data, and describe what they observed. This can be done in small and/or whole groups

Teachers ask probing questions that encourage students to look for patterns or irregularities in their data.

Extend

Students expand their learning, practice skills and behavior, and make connections or applications to related concepts and in the world around them.

Teachers provide learning opportunities for students to apply their knowledge and to gain a deeper understanding. Activities can include reading articles and books, writing, designing other experiments, and exploring related topics on the Internet.

Evaluate

Students answer questions, pose questions, and illustrate their knowledge (understandings) and skill (abilities).

Teachers diagnose student understanding through an ongoing process. Assessment can be both formative (ongoing and dynamic) and summative (end-of-lesson final test or product).

The 5E's instructional model was developed by the Biological Sciences Curriculum Study (http://www.bscs.org/). This format was borrowed from the SEDL Afterschool website (http://www.sedl.org/afterschool/toolkits/science/tk_5Es.html).